

high areas and developed into storm-centre number x. By midnight of the 20th the rapid movement of this low had pushed it beyond observation. On the afternoon of the 18th signals were ordered on Lake Superior, at Milwaukee, Grand Haven, and at the Strait of Mackinac. Signals were soon after ordered at all stations on the upper lakes to Port Huron. Gales were general but no disasters were reported.

X.—Low area number x was generated by the high areas on each side of it and out of a tongue of low pressure extending from ne. to sw. from Canada to Colorado. During the 20th, the pressure was very near the normal at the place of its formation, but there was a distinct cyclonic circulation in the upper Mississippi valley central over the state of Iowa. A decided cold wave was to the northwest of this storm and rain fell in advance of it. Gales commenced on the lakes and continued during the 20th to the 23d, with severe weather and numerous snow-storms. The rate of movement was greatest while passing over the lake region. The first snow of the season fell at most of the Lake Erie stations, while very rough weather was reported on that lake. Hail also fell at several stations in the path of the storm. On Lake Ontario the gales were very severe, and much damage might have been done except for the announcement by signal of its approach. On Lake Ontario, the schooner "Jessie Drummond," was damaged. The first snows of the season on Lake Michigan occurred while the influence of this low was felt. By midnight of the 22d, while this area was central in the lower Saint Lawrence valley, its central line of direction was changed slightly to the southeast and by the morning of the 24th it was no longer apparent. Signals continued at the stations on the lakes on the 19th, having been extended to include all lake stations, the dangerous conditions arising from low area number ix. not yet having passed away. The observer at Toledo reports that the signal was timely and of much benefit. The class of gusty or squally winds which prevail near his station on the approach and passage of low followed by high barometric areas, are those most dangerous and most feared. Hail accompanied the storm at most places on the lakes. On the Atlantic coast the storm was dangerous. Vessels bound for Eastport, Maine, were late and many detained. The signal was not justified by the wind velocity reached, but the observer reports that it was popularly considered justified.

XI.—A slight depression appeared in Manitoba with a cyclonic tendency on the midnight chart of the 23d. Its advance was preceded by cold threatening weather and snow. On the 24th, when near the upper lake region, severe gales occurred with rain and snow. During the 25th it rapidly moved eastward in advance of a "high," and died out upon reaching Maine. Its influence during the early part of the 25th was felt in the lower lake region by the occurrence of severe gales. Signals were ordered for this storm on the lakes as far east as Buffalo on the morning of the 24th. Signals were not justified by reported velocities on Lake Superior, but on Lake Michigan they were, where in some cases the winds were reported the severest of the season. On Lake Huron the schooner "Garret P. Smith" went ashore and was lost. At Detroit the southerly gale was severe and detained many vessels. On Lake Erie dangerous winds occurred and detained many vessels, and the signal was of benefit, but the registered velocities in some cases failed to show a verification. At Buffalo the signal was late, and it would have been better if the hoist of the previous day had continued, as many vessels, seeing no signal displayed, cleared the harbor but were compelled to return. On Lake Ontario the storm prevailed during the 24th and ended during the afternoon. As this depression passed off the Atlantic coast high northwest winds occurred, but no damage was reported, nor were the winds dangerous, as the high velocities generally lasted for a short time.

XII.—This depression first appeared north of Montana and took an easterly movement. During the 25th the pressure was below the normal in the districts west of the Missis-

issippi river, and by midnight distinct depressions could be seen central in Colorado and Manitoba, but by the morning of the 26th the centre in Colorado was no longer apparent, but that in Manitoba continued its easterly course. Rain preceded this disturbance in the Missouri and upper Mississippi valleys, and early on the 26th gales occurred on Lake Superior. During the 27th gales were frequent over the lower lakes while the centre was passing to the northward. Signals were ordered on the early morning of the 26th on Lakes Superior, Michigan and Huron, and later in the day extended to include Lake Ontario. In the afternoon signals were changed to northwest on Lakes Superior and Michigan. The observer at Escanaba reports damage done at Sturgeon Bay and that the gales were very severe in northern Lake Michigan. In the southern portion of the lake the winds were also dangerous. On Lake Huron the winds were dangerous but the reported velocities were not sufficiently high to justify signals. The signal displays were generally verified on Lake Erie by strong southerly gales. Southerly gales occurred on Lake Ontario during the night of the 26th and 27th. The winds became brisk on the Maine coast and in the Bay of Fundy as this depression passed to the north.

XIII.—This low area was first apparent with a depression in Montana at midnight of the 29th. Its course is shown on the chart, and while it passed into the lake region it was accompanied by a few gales and cloudy weather with rain. It is traced to Georgian Bay at midnight of the 31st, when the discussion closes. Signals were ordered at Duluth at the afternoon report of the 30th, and followed on all the lakes at midnight. They were changed to northwest on the 31st. These signals were generally justified by moderate gales.

XIV.—This depression suddenly appeared in Washington Territory at the afternoon observation of the 30th, by the morning of the next day it has moved to northern Montana. It moved thence as a slight depression during the 31st south-eastward, and by midnight it was central in the Missouri valley.

NORTH ATLANTIC STORMS DURING OCTOBER, 1884.

[Pressure expressed in inches and in millimetres; wind-force by scale of 0-10.]

The paths of the atmospheric depressions that have appeared in the north Atlantic ocean during the month, have been approximately determined from reports of observations furnished by captains and agents of ocean steamships and sailing vessels; from data obtained through the co-operation of the Hydrographic office, U. S. Navy, and the "New York Herald Weather Service," and from other miscellaneous data received at this office up to November 23d.

To the Hydrographic office, U. S. Navy, the Chief Signal Officer desires particularly to express his indebtedness for valuable data furnished through the kindness and courtesy of the officers there on duty.

The probable paths of fourteen atmospheric disturbances are shown on the chart for October, 1884; of this number, seven were continuations of depressions which passed over the United States and Canada. The disturbances charted as 5 and 5a were tropical hurricanes, and were probably one and the same, but, owing to the absence of reliable data for the 10th and 11th, it has been deemed advisable to indicate their paths by separate tracings. That traced as 5a displayed great energy, causing much damage to shipping and other property, in and near the Bahama Islands during the period from the 12th to 16th.

During the first and second decades of the month, an area of high barometer occupied the ocean between W. 30° and the European coasts, and this appears to have checked the advance of some of the depressions, while the others have moved north-eastward at higher latitudes than usual. As regards the general character of the weather over the Atlantic north of 40° north latitude during October, 1884, it may be summarized as follows: 1st to 6th, moderate to strong gales, mostly from s. through sw. to wnw., with rainy or cloudy weather and high

sea; 6th to 13th, generally moderate breezes, clear weather, smooth sea and occasional fogs; from the 13th to the close of the month, moderate to strong sw. to nw. gales, squally weather and high sea.

The following descriptions refer to the depressions charted:

1.—This depression was shown near N. 56° W. 35° on the 1st, the pressure at the centre being about 29.0 (736.6). The lowest reported barometric reading was 29.03 (737.3), recorded by Captain H. C. Williams, commanding the s. s. "Oregon," in N. $55^{\circ} 22'$, W. $38^{\circ} 52'$, wind n., force 7, showery. Vessels between N. 50° and 55° , and W. 35° and 28° had westerly and northwesterly winds of force 6 to 8, with barometer ranging from 29.26 (743.2) to 29.49 (749.0); to the eastward of W. 28° the winds were south-southwesterly and southwesterly, shifting during the day to west. On the 2d the depression was off the northwestern coast of Ireland, causing strong southwesterly breezes over Saint George's Channel and westerly breezes at sea.

2.—This was a continuation of the disturbance traced over Canada and the Gulf of Saint Lawrence and described as low area i., under "Areas of low barometer." On the 2d the depression was near the eastern coast of Newfoundland, the lowest reported pressure being 29.44 (747.8), wind wsw., force 4, light rain; vessels to the eastward of W. 50° had moderate southerly breezes, and pressure ranging from 29.7 (754.4) to 29.9 (759.4), while those between W. 55° and the coast of Nova Scotia had northwesterly winds of moderate force. By the 3d the centre of disturbance was near N. 50° , W. 37° , where the barometer read 29.3 (744.2); strong southerly gales occurred over the region between W. 35° and 30° and N. 45° and 50° with westerly winds on the fiftieth parallel. The following vessels were in the vicinity of the storm-centre: s. s. "Wisconsin," C. L. Rigby, commanding, in about N. $48^{\circ} 40'$, W. $38^{\circ} 30'$ reported that from 1 a. m. till 4 a. m. it blew with hurricane force from sse., with very heavy rain, barometer falling suddenly from 29.54 (753.0) to 29.28 (743.7), with wind shifting to w. by n. The s. s. "Rhynland," J. C. Jamison, commanding, reported in lat. $37^{\circ} 48' N.$, long $43^{\circ} 24' W.$, at 2 hours on the 2d, barometer 29.75 (755.6), gradually falling, wind s., increasing; at 14 hours, in N. $48^{\circ} 26'$, W. $39^{\circ} 38'$, barometer, 29.29 (744.0), sw. gale with heavy squalls and high sea; 18 hours 36 minutes, in N. $43^{\circ} 37'$, W. $38^{\circ} 35'$, barometer 29.30 (744.2), rising slowly, wind unsteady, from w. to nw., fresh breeze. The s. s. "Gallia," M. Murphy, commanding, in about N. 49° W. 35° , on the 3d, had heavy gale from ssw., with heavy rain squalls, barometer 29.23 (742.4), wind shifting to westward. On the 4th, the pressure over the region east of the twenty-fifth meridian was 30.2 (767.1), while at the centre of disturbance it had increased to 29.7 (754.4); during the day the depression filled in.

3.—This was a continuation of the depression traced over the United States and Canada as low area ii. On the morning of the 5th the disturbance was central off the southern coast of Newfoundland, the pressure near the centre being about 29.0 (736.6). Moderate southerly gales prevailed over the region between W. 55° and 50° , with northerly and northwesterly winds to the westward of the first-mentioned meridian. On the 6th the disturbance was shown as an extensive area of low barometer, covering the ocean between N. 40° and 50° and from Nova Scotia eastward to the fortieth meridian. The lowest barometric readings reported within this area were 29.02 (737.1) and 29.16 (740.7) near N. 46° , W. 47° . Southerly gales of force 8 occurred to the eastward of W. 47° with moderate northwesterly winds to the westward. On the 7th the pressure increased to 29.7 (754.4), and by the following day the depression had filled in, the pressure over the ocean east of the fortieth meridian ranging from 30.0 (762.0) to 30.25 (768.3).

4.—This was apparently a continuation of low area iii. It passed over the American continent and into the Atlantic from the coast of Nova Scotia on the 6th. On the 7th the centre of disturbance was in the southern part of Newfoundland, vessels on the southeastern part of the Banks reporting moderate southwesterly and westerly gales, with pressure

ranging from 29.14 (740.1) to 29.35 (745.5). On the 8th the barometric minimum was near the Strait of Belle Isle, while the area of high pressures to the eastward of the fortieth meridian seemed to be gradually moving to the westward. On the 9th the low area moved northward beyond the fifty-fifth parallel and out of the range of the observations.

5.—This was a tropical hurricane, the first indications of which were noted on the 7th and 8th, near the eastern end of Cuba. Prior to and during the 7th, very heavy rains are reported to have occurred in Jamaica; on the 7th, the s. s. "Cienfuegos," F. M. Faircloth, commanding, sailed from Cienfuegos, Cuba, for Santiago, and had strong ne. winds with cloudy weather, barometer 29.8 (756.9). On the morning of the 8th, the "Cienfuegos" was off Cape Cruz, with light e. breeze and heavy rainfall, wind increasing from 8 a. m. to noon; during the afternoon, the wind shifted to ene. and ne., with heavy rain squalls. At 4 p. m., the vessel was in the harbor of Santiago, and from that time until 9 p. m., the wind blew in hurricane-like squalls, with rain, from e. to nne.; and at 9.30 p. m., it was blowing a hurricane from nne., with barometer down to 29.58 (751.3); by 10 p. m., the wind had shifted to nw., and was blowing with hurricane force, barometer 29.51 (749.5); at 11 p. m., it was w. by n., with heavy rain squalls, barometer 29.6 (751.8), and rising; at midnight, barometer 29.7 (754.4), wind w. by s., moderating, although the squalls were still heavy and frequent. By noon of the 9th, the wind had shifted to sw., blowing strongly, weather clearing, with barometer 29.85 (758.2).

From the report of the "Cienfuegos," and the following press report, it would appear that the hurricane passed over the eastern end of Cuba:

A hurricane, coming from the direction of Jamaica, passed over Santiago de Cuba, on Wednesday night, (October 8th). Some small vessels in the harbor, and a number of houses in the city, were slightly damaged.

In the absence of reliable data the subsequent path of this cyclone cannot be determined; it did not, however, approach Havana, since the observations at that station during the first decade of the month, do not show the existence of the disturbance; a very slight barometric depression appeared from the 7th till 14th, but during this time the weather remained dry and clear.

5a.—This was a tropical hurricane, the centre of which was to the northward of Cuba on the 11th, but its position could not be definitely determined until the 12th. This hurricane may have been identical with that which crossed eastern Cuba on the 8th, but the data received up to date are too meagre to warrant the tracing of a continuous curve.

On the 11th, the s. s. "Ivanhoe," off Cape Maysi, Cuba, had a southwest wind of force 7, increasing during the day to force 8, with heavy rain. Captain Fyfe reported having passed numerous trees and vegetable matter, evidently washed out by heavy rains. The s. s. "Cienfuegos," which was in the harbor of Guantanamo, Cuba, during the 10th, 11th, and 12th, reported light baffling winds from s. to se., with heavy rains during those dates. On the 12th, the storm-vortex was apparently between Crooked Island and Abaco. The s. s. "Ivanhoe," was near the former place at noon of the 12th, and had a sw. gale of force 8 to 10, with heavy rain, barometer 29.6 (751.8) and falling, while the schooners "Josephine," in N. 27° , W. $76^{\circ} 15'$, had ne. gale, blowing in gusts, with squalls of rains, barometer 28.65 (753.1), and "Isabel Alberto," in about N. $27^{\circ} 41'$, W. $75^{\circ} 21'$, had a severe ene. gale with heavy showers of rain and high se. sea-swell, barometer 29.83 (757.7).

During the 13th the hurricane seems to have curved to the east-northeastward in about N. 26° , W. 75° . The steamers "Kehrwieder" and "Jamaican," the former in N. $27^{\circ} 11'$, W. $70^{\circ} 33'$, and the latter in N. $26^{\circ} 57'$, W. $72^{\circ} 27'$, had southeasterly gales of force 7 to 8, with very heavy rain squalls, thunder and lightning, and high sea from all directions, barometer 29.62 (752.3). The "Ivanhoe," during the forenoon of the 13th, had a s. gale of force 10, with terrific squalls, heavy rain, and dark, gloomy weather, and at noon was in N. $26^{\circ} 11'$, W.

74° 23'; at 2 p. m. the wind shifted to e. and blew a whole gale, barometer (correction unknown) 29.10 (739.1), and at 8 p. m. it had shifted to ne., force 10, barometer 29.0 (736.6). The s. s. "Cienfuegos," off Cape Maysi, on the 13th, had strong southwesterly wind, with heavy rain squalls and barometer 29.85 (758.2), rising. During the 13th the progressive movement of the cyclone appears to have been very slow, and on the 14th its centre was again well-defined in about N. 26°, W. 74°. The s. s. "Kehrwieder," during the morning of the 14th had sse. wind of force 9, barometer (correction unknown) 29.58 (751.3); at noon she was latitude 26° 14' N., longitude 74° 26' W.; during the afternoon the barometer continued to fall and the wind shifted from s. to se., ese., and e., blowing with hurricane force throughout and with heavy rain squalls from s. and sw.; at 4 p. m. the wind shifted to east, barometer 28.95 (735.3), and at midnight it was ne., moderating. On the same date the "Jamaican," in N. 26° 26', W. 74° 15', at noon, reported se. by s. to se. winds of force 5 to 8 and barometer falling until 4 a. m., when there was less wind and the sky became clearer; at sunrise the sky was clear overhead while a dense bank of clouds, like a wall, appeared in the southwest, with a wild and threatening appearance all around the horizon. At 8 a. m. the vessel appeared to steam into the bank of cloud above referred to, and from that time until noon she experienced heavy squalls of wind and rain, with high, confused sea; during the afternoon the wind shifted from sse. to e., and at midnight it was blowing from the ne. with force 9, barometer (correction unknown) 29.25 (742.9). During this time, vessels near the Florida coast had heavy n. gales; those off the Georgia and Carolina coasts had ne. gales, while those to the eastward of the seventieth meridian and between N. 25° and 30° had strong se. winds, steady in direction, but accompanied by heavy rain squalls. On the 15th the storm-centre passed to the eastward of the seventieth meridian; to the westward the winds had shifted to n. and nnw. and blew with the force of a strong gale until midnight of the 15th, the barometer rising gradually. Vessels to the eastward of W. 70° had heavy gales, the wind shifting from se. to s. and sw., with falling barometer, and the strong ne. and e. gales continued in the Gulf Stream and on the thirtieth parallel. On the 16th the storm-centre moved northeastward to about N. 28°, W. 68°, and the heavy gales continued in all quadrants of the disturbance; by the 17th it had passed to the eastward of the sixtieth meridian, without any decrease of energy, as the vessels which came within its influence reported heavy sw. to ne. gales; while those to the westward of 65° had moderate to strong w. and nw. gales. After the 17th this disturbance passed beyond the area covered by the reports as yet to hand.

6.—This was a continuation of the depression traced over the United States and Canada as low area v. On the morning of the 9th its centre was over the Gulf of Saint Lawrence; by the following day it had reached the Atlantic, causing moderate southerly breezes over the region east of the fiftieth meridian, and fresh to strong northerly breezes to the westward of that meridian. During the day the disturbance moved north-northeastward, and on the 11th it was shown near N. 55°, W. 38°, the lowest reported pressure in that region being 29.73 (755.1), with moderate to fresh breezes. On the 12th the chart showed the region of least pressure to be to the northward of N. 58°, and between W. 25° and 30°, and by the following day it had disappeared.

7.—This was probably a continuation of the disturbance described as low area viii., under "areas of low barometer." It passed over the Maritime Provinces during the 13th, and on the 14th the centre was apparently in Newfoundland, with the pressure below 29.4 (746.7). During the 14th it moved in a northerly direction, and by the 15th the centre of depression was near Greenland, the lowest reported barometric reading being 29.05 (737.9), in N. 55°, W. 45°.

8.—This appeared as a slight depression near N. 43°, W. 54° on the 15th; it moved north-northeastward with decreasing pressure at the centre, and on the 15th it was central off the

eastern edge of the Banks, with the pressure below 29.4 (746.7) and attended by strong breezes to moderate gales in the eastern quadrants. On the 17th the depression passed northward beyond the limits of the observations.

9.—This depression was apparently central near N. 42° and between W. 58° and 62° on the 18th, on which date the pressure in the above-mentioned region was less than 29.6 (751.8), and moderate southeasterly winds were reported on the Banks of Newfoundland, with strong northwesterly breezes to the westward of W. 60°. On the 19th the region of least pressure was shown near N. 50°, W. 40°, where the lowest reported reading was 29.33 (745.0); the wind had shifted to westerly over the Banks, but showed no increase in force; and to the eastward of W. 40° the southerly winds attained the force of a moderate gale. On the 20th the storm-centre was apparently near N. 56° and between W. 25° and 30°; strong westerly breezes to moderate gales prevailed on the fiftieth parallel, from the Banks eastward to W. 30°, with moderate to strong southerly and southwesterly breezes to the eastward of that limit.

10.—This depression was shown to the northward of the fiftieth parallel and near W. 45° on the 21st, and was probably a continuation of that traced as low area ix. During the 21st, it caused fresh westerly and southwesterly gales on the Banks, and as it moved northeastward the pressure apparently decreased until it reached 28.98 (736.1), on the 22d, near N. 56°, W. 34°. Moderate to strong westerly gales prevailed over the region between N. 47° and 53°, and W. 40° and 30°, with strong northwesterly gales to the westward of the first-mentioned meridian. The disturbance passed beyond the area of the observations during the 22d, but the westerly gales continued without abatement during the 23d.

11.—This was a slight depression which apparently originated near N. 52°, W. 20° during the 21st. The chart for the 22d showed no material change in the position of the storm-centre, but by the following day it had approached the Irish coast, the winds having shifted to northerly between W. 12° and W. 20°. On the 24th the depression had apparently moved into the Bay of Biscay.

12.—This was a continuation of low area x. It passed off the coast of Nova Scotia into the Atlantic on the night of the 23d, and on the following morning it was central south of Newfoundland, attended by fresh to strong southerly gales to the eastward of the storm-centre. At the same time an area of high pressure occupied the region east of the Banks, and by the 25th this depression had apparently filled in.

13.—This was a disturbance which appeared on the 25th to the northward of N. 55° and near W. 20°, where the pressure was less than 29.5 (749.3). It apparently passed eastward, causing strong westerly gales from N. 53° northward and between W. 20° and the British coast.

14.—On the 30th an extensive depression apparently occupied the ocean from N. 48° to 58° and between W. 35° and 20°. Within this region the pressure ranged from 29.23 (742.4) to 29.49 (749.0). The barometric minima were to the northward of the fifty-fifth parallel at the close of the month.

OCEAN ICE.

On chart i. are shown the positions of the icebergs observed in the north Atlantic ocean during October, 1884, as obtained from reports sent to this office by ship-masters; reports furnished through the co-operation of the "New York Herald Weather Service," and from other data published in the "New York Maritime Register."

In view of the small number of icebergs reported during October, 1884, it would appear that the probability of encountering those obstacles to navigation is now comparatively slight, at least within the routes of vessels between the United States and Europe; they may, however, be met with near the Strait of Belle Isle and along the eastern and southern coasts of Newfoundland.

In October, 1883, a few bergs were observed between N. 46° 56', W. 46° 22', and N. 48° 18', W. 47° 34'.

In October, 1882, no icebergs were reported.

Icebergs were observed during October, 1884, as follows:

2d.—Bark "Fluorine," in N. 46° 56', W. 50° 55', passed a large iceberg.

22d.—S. S. "Venetian" passed an iceberg, eight miles east of Cape Race.

26th.—S. S. "Lake Manitoba" observed a large iceberg north of the entrance to Belle Isle Strait, and a smaller one off Cape Norman.

The "New York Maritime Register" of October 22d, publishes the following:

Captain Joseph S. Frazier, of the schooner "Admiral," which arrived at Gloucester, Massachusetts, October 20th, from the Banks, says he counted seventeen icebergs south from Cape Pine, and forty-seven in sight five miles northeast of Cape Race. One of them was three miles long.

TEMPERATURE OF THE AIR.

[Expressed in degrees, Fahrenheit.]

The distribution of mean temperature over the United States and Canada for October, 1884, is exhibited on chart ii. by the dotted isothermal lines; and on chart iv., is shown the departures from the October normal. The last named chart shows that the mean temperatures are slightly below the normal in the following districts: along the immediate California coast; in the vicinity of Portland, Oregon; New England and eastern New York; southern Florida; southwestern Arizona, and in the central and southern portions of Texas. In all other districts, the mean temperatures are above the normal. Chart ii. shows three separate areas over which the departures are from 4° to 7°, viz.: (1) western Montana; (2) the southern portions of Dakota, Minnesota and Wisconsin, Nebraska, and portions of Iowa, Kansas, Colorado, New Mexico and Arizona; (3) the lower Ohio and central Mississippi valleys, Tennessee, and the south Atlantic states. In the other districts, where the temperatures are above the normal, the departures vary from 1° to 4°. In the following table are shown the normal temperatures for the month of October for a series of years; the mean temperatures for October, 1884; and the departures from the normal for each of the several geographical districts, as determined from the records of the Signal Service:

Average temperatures for October, 1884.

Districts.	Average for Oct. Signal-Service ob- servations.		Comparison of Oct., 1884, with the average for several years.
	For sev- eral years.	For 1884.	
New England.....	52.4	51.9	-0.5
Middle Atlantic states.....	58.0	58.9	+0.9
South Atlantic states.....	65.6	68.6	+3.0
Florida peninsula.....	74.5	75.1	+0.6
Eastern Gulf states.....	67.0	70.7	+3.7
Western Gulf states.....	67.9	69.7	+1.8
Rio Grande valley.....	74.9	73.8	-1.1
Tennessee.....	61.6	65.6	+4.0
Ohio valley.....	57.4	60.4	+3.0
Lower lake region.....	51.4	52.8	+1.4
Upper lake region.....	47.7	49.9	+2.2
Extreme northwest.....	44.3	44.8	+0.5
Upper Mississippi valley.....	53.6	57.6	+4.0
Missouri valley.....	49.9	54.2	+4.3
Northern slope.....	43.0	48.3	+5.3
Middle slope.....	52.6	56.6	+4.0
Southern slope.....	62.7	63.5	+0.8
Northern plateau.....	46.9	49.8	+2.9
Southern plateau.....	60.2	62.2	+2.0
North Pacific coast region.....	50.3	50.8	+0.5
Middle Pacific coast region.....	60.3	59.6	-0.7
South Pacific coast region.....	68.5	63.9	-4.6
Mount Washington, N. H.....	30.5	28.4	-2.1
Pike's Peak, Colo.....	21.0	24.4	+3.4
Salt Lake City, Utah.....	50.6	52.6	+2.0

DEVIATIONS FROM MEAN TEMPERATURE.

The departures exhibited by the reports from the regular Signal Service stations are shown in the table of average tem-

peratures for October, 1884. Voluntary observers report the following notes in connection with this subject:

Arkansas.—Lead Hill, Boone county: mean temperature, 63°2, is 0°2 below the October average for the three preceding years.

Dakota.—Webster, Day county: mean temperature, 52°3, is 1°4 below the October average for the two preceding years.

Illinois.—Mattoon, Coles county: mean temperature, 57°0, is 1°1 above the October average for the last four years.

Anna, Union county: mean temperature, 64°6, is 4°2 above the October average for the past nine years.

Riley, McHenry county: mean temperature, 51°5, is 4°5 above the October average for the last twenty-four years; in only two years of that period has October been warmer, viz: in 1879 and 1882. The temperature did not fall below 32° from April 22d to October 22d (one hundred and eighty-four days); in only one year, viz., 1878, of the above period has the temperature remained above freezing so long.

Sycamore, DeKalb county: mean temperature, 51°3, is 1° below the October average for the last four years.

Indiana.—Spiceland, Henry county: mean temperature, 56°, is 5° above the October average for the last thirty years.

Logansport, Cass county: mean temperature, 59°2, is 6° above the October average for the last twenty-five years.

Wabash, Wabash county: mean temperature, 54°5, is 2°1 above the October average for the last nine years.

Kansas.—Yates Centre, Woodson county: mean temperature, 58°8, is 4°1 above the October average for the last four years.

Lawrence, Douglass county: mean temperature, 57°9, is 3°3 above the October average for the last seventeen years.

Independence, Montgomery county: mean temperature, 60°8, is 1°7 above the October average for the last thirteen years.

Wellington, Sumner county: mean temperature, 60°6, is 3°4 above the October average for the last six years.

Maine.—Gardiner, Kennebec county: mean temperature, 47°8, is 0°4 above the October average for a period of forty-eight years.

Maryland.—Fallston, Harford county: mean temperature, 56°4, is 0°9 above the October average for the last fourteen years.

Massachusetts.—Worcester, Worcester county: mean temperature, 48°7, is 2°3 below the October average for the last forty-five years.

Missouri.—Saint Louis: mean temperature, 62°8, is 6°7 above the October normal.

New Jersey.—South Orange, Essex county: mean temperature, 54°2, is 0°6 above the October average for the last fifteen years.

New York.—North Volney, Oswego county: mean temperature, 50°2, is 1°1 above the October average for the last seventeen years.

Palermo, Oswego county: mean temperature, 47°8, is 0°8 above the October average for the last thirty-one years.

Cooperstown, Otsego county: mean temperature, 48°3, is 3° above the October normal.

Ohio.—Wauseon, Fulton county: mean temperature, 53°2, is about 0.1 above the October average for the last fourteen years.

Pennsylvania.—Dyberry, Wayne county: mean temperature, 49°0, is 2° above the October average for the last seventeen years.

Tennessee.—Ashwood, Maury county: Mr. C. F. Williams reports that his meteorological record, extending back twenty-seven years, shows that the high temperatures during the first eight days of the month have been unprecedented.

Texas.—New Ulm, Austin county: mean temperature, 69°9, is 0.3 below the October average for the last thirteen years.

Vermont.—Woodstock, Windsor county: mean temperature, 45°9, is 1°2 above the October average for the last seventeen years.

Virginia.—Wytheville, Wythe county: mean temperature,